



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,636	03/23/2004	An Mei Chen	020310D1	4030
23596 7590 05/01/2008 QUALCOMM INCORPORATED 5775 MOREHOUSE DR. SAN DIEGO, CA 92121				
EXAMINER				
HUYNH, NAM TRUNG				
ART UNIT		PAPER NUMBER		
2617				
NOTIFICATION DATE		DELIVERY MODE		
05/01/2008		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

us-docketing@qualcomm.com

kascanla@qualcomm.com

namn@qualcomm.com

Office Action Summary

Application No.

10/807,636

Applicant(s)

CHEN ET AL.

Examiner

NAM HUYNH

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

This office action is in response to amendment filed on 1/17/2008. Of the previously presented claims 1-24, no amendments were made.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-4, 7-10, 13-16, and 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kallin et al. (US 6,058,308) (hereinafter referred to as Kallin) in view of Ho et al. (US 5,943,621) (hereinafter referred to as Ho), and further in view of Funato et al. (US 2003/0143999) (hereinafter Funato)

Regarding claims 1, 2, 7, 8, 13, and 14, Kallin discloses an apparatus and associated method for adaptively selecting a paging area in which to page a mobile terminal. In the scope of the invention, a selected number of pages is transmitted throughout a paging area when a mobile terminal is to be paged. If no acknowledgement of the page is detected by the network infrastructure, the paging area is adaptively altered, e.g. expanded (column 4, lines 21-25). This expansion includes cells adjacent to the neighboring cells that may be defined to be cells positioned within a certain distance from the center of a cell (paging area that is centered at a cell) or on neighbor cell lists (predefined number) (column 4, lines 55-67). The paging area may also include a center cell, its neighbors, and neighbors of the neighbor cells (column 11, lines 33-35).

However, Kallin does not explicitly disclose receiving registration from the MS when the number of cells identified in a first list is equal to a predetermined limit. Ho discloses a method and apparatus in a communications system for tracking mobile stations (abstract). In the scope of the invention, a mobile device reports a cell ID as it moves to a new cell, which causes a movement counter to be incremented. If the reported cell ID is not already stored in a movement history stack then a path length is increased. If the path length is equal to a movement threshold (predetermined limit) register, a location update is performed (registration). Once the location update or registration is performed, the cell ID of the current cell (cell in which MS last registered) is maintained and all other cell IDs are removed from the movement history stack (figure 6). Therefore it would have been obvious to one of ordinary skill in the art at the time

the invention was made to modify the invention of Kallin to limit the number of stored cell IDs as a mobile moves through a network, as taught by Ho, in order to significantly reduce unnecessary location updates occurring in known movement-based schemes and reduce signaling overhead due to location management.

In the combination of Kallin and Ho teaches moving of cells identified in a first list other than a cell in which the MS last registered, but is silent to what happens to the removed cell IDs. The combination does not explicitly disclose that the removed cells are moved to a second list. Funato discloses a method and associated apparatus for distributed dynamic paging area clustering under heterogeneous access networks (title). In the scope of the invention, a mobile host (MH) includes a host reporting agent (HRA) that includes a reporter process (REPF), a previous location table (PLT) (second list), and a current location table (CLT) (first list). Funato teaches that as the MH moves the REPF updates both the PLT and CLT and registers the MH with a new area. When the MH moves from a current paging area to another paging area, the REPF registers the MH in the new paging area and moves the CLT information to the PLT (moving the cells identified in a first list other than a cell in which the MS last registered, to a second list) (pages 5, 6, paragraph 88). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Kallin and Ho to include moving the cells removed from the movement history stack to a second list, as taught by Funato, in order to maintain a movement history log and further distinguish between an active cell and a previously visited cell. By maintaining a movement history log, in accordance with Funato, a minimum paging area may be

defined that takes consideration of the location probability of a mobile station.

Furthermore, it is obvious to a skilled artisan that a movement history log can be utilized by the network for functions such as billing or for forwarding data in an IP network.

Regarding claims 3, 4, 9, 10, 15, 16, 21, and 22, Kallin discloses that a first MSC (BSC) might signal to a neighboring second MSC to help paging using a message. If the second MSC receives a paging response, a message is sent to the first MSC indicating that additional paging is not necessary therefore showing that the information intended to be sent to mobile terminal has been sent (column 15, lines 40-54).

Regarding claims 19 and 20, the limitations are rejected as applied to claim 1. The MSC of Kallin et al. renders the BSC set forth in the claim.

5. Claims 5, 6, 11, 12, 17, 18, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kallin et al. (US 6,058,308) (hereinafter referred to as Kallin), Ho et al. (US 5,943,621) (hereinafter referred to as Ho), and Funato et al. (US 2003/0143999) (hereinafter Funato), and further in view of Papadimitriou et al. (US 2002/0187793) (hereinafter referred to as Papadimitriou).

The combination of Kallin, Ho, and Funato discloses the limitations set forth in claims 1, 7, 13, and 19, but does not explicitly disclose that a MSC attempts to locate the mobile terminal if the BSC could not locate the target mobile terminal.

Papadimitriou discloses global paging of mobile stations in a wireless network using a MSC pool (title). In the scope of the invention, if a mobile station does not respond to a page from a BSC/RNC, then a global page of the mobile station is performed (page 3,

paragraph 34). As can be seen in figure 3, the global paging area is a higher level in the hierarchal structure of the system. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Kaillin, Ho, and Funato to include another hierarchal step above the MSC, as taught by Papadimitriou, in order to page a mobile efficiently by paging first in an area where the mobile is likely to be located and then, if unsuccessful, in the next most likely area, and so on.

Response to Arguments

6. Applicant's arguments filed 1/17/2008 have been fully considered but they are not persuasive.

Applicant asserts that the combination of Kallin, Ho, and Funato does not explicitly teach or disclose the limitation recited "the MS having moved the cells identified in the first list, other than a cell in which the MS last registered, to a second list". The Examiner respectfully disagrees and submits that Ho teaches the maintaining of a "last registered cell" in the list (figure 6, item 614) and that Funato teaches the moving of information from a current list to a previous list for keeping statistical record of past traffic movement. In the combination of Kallin, Ho, and Funato, the cell for which the mobile registers with is maintained, as taught by Ho, and the removed cell IDs are moved into a previous location table, as taught by Funato, therefore teaching the aforementioned limitations.

7. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yagi (US 7,016,680)

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NAM HUYNH whose telephone number is (571)272-5970. The examiner can normally be reached on 8 a.m.-5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on 571-272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George Eng/
Supervisory Patent Examiner, Art Unit 2617

NTH
4/24/08